

**AMENDMENTS TO THE CLAIMS**

Claims 1 – 4 (cancelled)

Claim 5 (currently amended): A plasmid for expression of recombinant eukaryotic genes, the plasmid comprising:

a first transcription unit comprising a first transcriptional control sequence transcriptionally linked with a first 5'-untranslated region comprising a first synthetic intron, a first coding sequence, and a first 3'-untranslated region/poly(A) signal, wherein said first synthetic intron is between said first transcriptional control sequence and said first coding sequence; and

a second transcription unit comprising a second transcriptional control sequence transcriptionally linked with a second 5'-untranslated region comprising a second synthetic intron, a second coding sequence, and a second 3'-untranslated region/poly(A) signal, wherein said second synthetic intron is between said second transcriptional control sequence and said second coding sequence,

wherein the first and second synthetic introns both comprise a 5' splice site[[s]] having a sequence of residues 1-9 of SEQ ID NO:13, ~~10 residues #1 through #9, and/or a~~ branch point[[s]] having a sequence of residues 93-99 of SEQ ID NO:13, ~~10 residues #16 through #22, and/or and a~~ 3' splice site[[s]] having a sequence of residues 102-122 of SEQ ID NO:13 ~~10 residues #25 through #45~~.

Claims 6 – 9 (cancelled).

Claim 10 (currently amended): A plasmid for expression of recombinant eukaryotic genes, ~~comprising an intron having variable splicing, a first coding sequence, and a second coding sequence, wherein~~ the plasmid comprises:

a transcriptional control sequence transcriptionally linked with a first coding sequence and a second coding sequence;

a 5'-untranslated region;

an intron 5' to said first coding sequence, wherein the intron comprises a 5' splice site having a sequence of residues 1-9 of SEQ ID NO:13, a branch point having a sequence of residues 93-99 of SEQ ID NO:13, and a 3' splice site having a sequence of residues 102-122 of SEQ ID NO:13;

an alternative 3' splice site located between the first and second coding sequence; and

a 3'-untranslated region/poly(A) signal;

~~wherein the intron comprises a 5' splice site having a sequence of SEQ ID NO:10 residues #1 through #9, and/or a branch points having a sequence of SEQ ID NO:10 residues #16 through #22, and/or 3' splice sites having a sequence of SEQ ID NO:10 residues #25 through #45.~~

Claims 11 - 13 (cancelled).

Claim 14 (currently amended): A plasmid for expression of recombinant eukaryotic genes comprising:

a transcriptional control sequence transcriptionally linked with a first coding sequence, an IRES sequence, a second coding sequence, and a 3'-untranslated region/poly(A) signal, wherein said IRES sequence is between said first coding sequence and said second coding sequence; and

a synthetic intron between said transcriptional control sequence and said first coding sequence, wherein the synthetic intron comprises a 5' splice site having a sequence of residues 1-9 of SEQ ID NO:13 ~~10 residues #1 through #9, and/or a~~ branch point[[s]] having a sequence of residues 93-99 of SEQ ID NO:13 ~~10 residues #16 through #22, and/or and a~~ 3' splice site[[s]] having a sequence of residues 102-122 of SEQ ID NO:13 ~~10 residues #25 through #45.~~

Claims 15 – 50 (cancelled).

Claim 51 (currently amended): The plasmid of claim 10 wherein ~~the intron comprises a 5' splice having the sequence of SEQ ID NO:10 residues #1 through #9, a branch point having a sequence of SEQ ID NO:10 residues #16 through #22, and both the 3' splice site and the alternative 3' splice site have a sequence of~~ residues 102-122 of SEQ ID NO:13 ~~SEQ ID NO:10 residues #25 through #45.~~

Claim 52 (currently amended): The plasmid of claim 10 wherein ~~either the 3' splice site or the alternative 3' splice site~~ is weakened with respect to the alternative 3' splice site ~~other.~~

Claim 53 (currently amended): The plasmid of claim 10 wherein ~~either the 3' splice site or the alternative 3' splice site~~ is weakened with respect to the alternative 3' splice site ~~other~~ by changing three consecutive T's to A's.

Claim 54 (currently amended): The plasmid of claim 10 wherein the 3' splice site has a sequence of residues 102-122 of SEQ ID NO:13 ~~SEQ ID NO:10 residues #25 through #45~~ with residues 108-110 ~~#32 through #34~~ replaced by AAA and the alternative 3' splice site has a sequence of residues 102-122 of SEQ ID NO:13 ~~SEQ ID NO:10 residues #25 through #45.~~

Claim 55 - 64(canceled):

Claim 65 (currently amended): A synthetic transcription unit for efficient and accurate expression of recombinant eukaryotic genes, the transcription unit comprising a synthetic intron comprising:

a 5' splice site having a sequence of SEQ ID NO:15, MAGGTRAGT, wherein ~~M = C or A and R = G or A (SEQ ID NO:14);~~ a branch point having a sequence of SEQ ID NO:17, YNYTRAY, wherein ~~Y = C or T, R = A or G and N = any base (SEQ ID NO:16);~~ and a 3' splice site having a sequence of SEQ ID NO:18, wherein the 3' splice site contains 7 consecutive T residues. ~~Y<sub>16</sub>NYAGG, wherein Y = C or T, and N = any base (SEQ ID NO:18).~~

Claim 66 (canceled).

Claim 67 (previously presented): The synthetic transcription unit of claim 65, wherein the 3' splice site has a sequence TTCTTTTTTCTCTTCNYAGG, wherein Y = C or T, and N = any base (SEQ ID NO:19).

Claim 68 (canceled).

Claim 69 (previously presented): The synthetic transcription unit of claim 65, wherein the branch point and the 3' splice site together have a sequence of TACTAACGGTTCTTTTTTCTCTTCACAGG (SEQ ID NO:13, residues #93 through #122).

Claim 70 (previously presented): The synthetic transcription unit of claim 65, wherein an actual branch point in the branch point is located 24 to 38 nucleotides upstream from a site of splicing in the 3' splice site.

Claim 71 (previously presented): The synthetic transcription unit of claim 65, wherein the synthetic intron is from 90 to 200 nucleotides in length.

Claim 72 (currently amended): A synthetic transcription unit for efficient and accurate expression of recombinant eukaryotic genes, wherein the transcriptional unit comprises a synthetic intron having the sequence of SEQ ID NO:13. ~~The synthetic transcription unit of claim 65, wherein the synthetic intron has a sequence CAGGTAAGTGTCTTC N<sub>77</sub>-TACTAACGGTTCTTTTTTCTCTTCACAGG (SEQ ID NO:13).~~

Claim 73 (currently amended): A synthetic transcription unit for efficient and accurate expression of recombinant eukaryotic genes, the transcription unit comprising a synthetic intron of from about 90 to about 200 nucleotides in length which has a 5' splice sequence of CAGGTAAGT (SEQ ID NO:13, residues #1 through #9), a branch point sequence of TACTAAC (SEQ ID NO:13, residues #93 46 through #99 22), and a 3' splice site having a sequence Y<sub>16</sub>NYAGG, wherein Y = C or T and contains 7 consecutive T residues, and N = any base (SEQ ID NO: 18),

Claim 74 (previously presented): The synthetic transcription unit of claim 73, wherein the 3' splice site has the sequence TTCTTTTTTCTCTTCACAGG (SEQ ID NO: 13 residues #102 through #122).

Claim 75 (previously presented): The synthetic transcription unit of claim 73, wherein an actual branch point in the branch point is located 24 to 38 nucleotides upstream from a site of splicing in the 3' splice site.

Claim 76 (currently amended): The synthetic transcription unit of claim 73, wherein the synthetic intron has a sequence of SEQ ID NO:13. ~~CAGGTAAGTGTCTTC-N<sub>77</sub>-TACTAACGGTTCTTTTTTCTCTTCACAGG (SEQ ID NO:13).~~